



Entrez PubMed Nucleotide Protein Genome Structure OMIM PMC Journals Books
 Search PubMed for #2 NOT (#3 or #4) Preview Go Clear
☒ Limits Preview/Index History Clipboard Details

Field: Title/Abstract, Limits: Publication Date to 2001/04/04

- Search History will be lost after eight hours of inactivity.
- To combine searches use # before search number, e.g., #2 AND #6.
- Search numbers may not be continuous; all searches are represented.
- Click on query # to add to strategy

About Entrez

Text Version

Entrez PubMed

Overview

Help | FAQ

Tutorial

New/Noteworthy

E-Utilities

PubMed Services

Journals Database

MeSH Database

Single Citation Matcher

Batch Citation Matcher

Clinical Queries

LinkOut

Cubby

Related Resources

Order Documents

NLM Catalog

NLM Gateway

TOXNET

Consumer Health

Clinical Alerts

ClinicalTrials.gov

PubMed Central

Search	Most Recent Queries	Time	Result
#13	Search #2 NOT (#3 or #4) Field: Title/Abstract, Limits: Publication Date to 2001/04/04	14:53:11	99
#12	Search #2 NOT (#3 or #4) Field: Title/Abstract	14:26:46	214
#9	Search #3 NOT #4 Field: Title/Abstract	14:26:21	8
#4	Search #2 AND (culture or media or cystein* or sulfat*) AND (toxin or pertussis or PT) Field: Title/Abstract	14:23:01	46
#3	Search #2 AND (culture or media or cystein* or sulfat*) AND (toxin or pertussis or PT)	14:18:19	54
#2	Related Articles for PubMed (Select 12595447)	14:17:31	268
#1	Search 12595447	14:17:28	1

Clear History

[Write to the Help Desk](#)

[NCBI](#) | [NLM](#) | [NIH](#)

[Department of Health & Human Services](#)

[Privacy Statement](#) | [Freedom of Information Act](#) | [Disclaimer](#)

Nov 8 2004 18:23:56

5711

FILE 'HOME' ENTERED AT 18:08:10 ON 15 NOV 2004

L1 2242 (BARIUM OR BACL## OR SULFATE OR SO4## OR CYSTEINE) AND (BACTER?
OR PATHOGEN? OR BORDETELLA OR SHIGELLA OR STAPH?) (P) #####TOXIN

L6 706 L5 AND (BACTER? OR CLOSTRID? OR BORDETELLA OR SHIGELLA OR STAPH
?)

(FILE 'HOME' ENTERED AT 18:08:10 ON 15 NOV 2004)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE' ENTERED AT 18:09:47 ON 15 NOV 2004

L1 2242 S (BARIUM OR BACL## OR SULFATE OR SO4## OR CYSTEINE) AND (BACTE
L2 533 S L1 AND (CYSTEINE OR CYS?) (P) TOXIN
L3 37 S L2 AND (SULFATE OR METABOL?) (S) (CYSTEINE OR TOXIN)
L4 24 DUP REM L3 (13 DUPLICATES REMOVED)
L5 765 S L1 AND (SULFATE OR SO4##) (P) TOXIN
L6 706 S L5 AND (BACTER? OR CLOSTRID? OR BORDETELLA OR SHIGELLA OR S
L7 440 S L1 AND (SULFATE OR SO4##) (S) TOXIN
L8 420 S L7 NOT L2
L9 22 S L8 AND (INHIBIT (S) TOXIN)
L10 27 S L7 AND (INHIBIT (S) TOXIN)
L11 31 S L6 AND (INHIBIT (S) TOXIN)
L12 19 DUP REM L11 (12 DUPLICATES REMOVED)

L4 ANSWER 3 OF 24 MEDLINE on STN DUPLICATE 2
 AN 2003084092 MEDLINE
 DN PubMed ID: 12595447
 TI Reduced glutathione is required for pertussis **toxin** secretion by **Bordetella pertussis**.
 AU Stenson Trevor H; Patton Angela K; Weiss Alison A
 CS Department of Molecular Genetics, Biochemistry, and Microbiology, University of Cincinnati, Cincinnati, Ohio 45267-0524, USA.
 NC R01 AI23695 (NIAID)
 SO Infection and immunity, (2003 Mar) 71 (3) 1316-20.
 Journal code: 0246127. ISSN: 0019-9567.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 200303
 ED Entered STN: 20030222
 Last Updated on STN: 20030321
 Entered Medline: 20030320
 AB The abilities of **cysteine**-containing compounds to support growth of **Bordetella pertussis** and influence pertussis **toxin** transcription, assembly, and secretion were examined. **Cysteine** is an essential amino acid for *B. pertussis* and must be present for protein synthesis and **bacterial** growth. However, **cysteine** can be **metabolized** to **sulfate**, and high concentrations of **sulfate** can selectively inhibit transcription of the virulence factors, including pertussis **toxin**, via the BvgAS two-component regulatory system in a process called modulation. In addition, pertussis **toxin** possesses several disulfide bonds, and the **cysteine**-containing compound glutathione can influence oxidation-reduction reactions and perhaps disulfide bond formation. **Bacterial** growth was not observed in the absence of a source of **cysteine**. Oxidized glutathione, as a sole source of **cysteine**, also did not support **bacterial** growth. **Cysteine**, **cystine**, and reduced glutathione did support **bacterial** growth, and none of these compounds caused modulation at the concentrations tested. Similar amounts of periplasmic pertussis **toxin** were detected regardless of the source of **cysteine**; however, in the absence of reduced glutathione, pertussis **toxin** was not efficiently secreted. Addition of the reducing agent dithiothreitol was unable to compensate for the lack of reduced glutathione and did not promote secretion of pertussis **toxin**. These results suggest that reduced glutathione does not affect the accumulation of assembled active pertussis **toxin** in the periplasm but plays a role in efficient pertussis **toxin** secretion by the **bacterium**.

L4 ANSWER 4 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:747833 CAPLUS
 DN 135:302952
 TI Improved method for the production of bacterial toxins
 IN Blake, Milan S.; Bogdan, John A., Jr.; Nazario-Larrieu, Javier
 PA Baxter International Inc., USA; Baxter Healthcare S.A.
 SO PCT Int. Appl., 46 pp.
 CODEN: PIXXD2

DT Patent
 LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----

PI WO 2001074862 A2 20011011 WO 2001-US10938 20010404
 WO 2001074862 A3 20021003
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
 CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,
 HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
 LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,
 RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN,
 YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 US 2002061555 A1 20020523 US 2001-825770 20010404
 US 6686180 B2 20040203
 US 2002165344 A1 20021107 US 2001-825769 20010404
 EP 1268531 A2 20030102 EP 2001-926612 20010404
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 JP 2003531586 T2 20031028 JP 2001-572551 20010404
 PRAI US 2000-194478P P 20000404
 US 2000-194482P P 20000404
 WO 2001-US10938 W 20010404
 AB Methods and compns. are provided for the enhanced production of
bacterial toxins in large-scale cultures. Specifically, methods
 and compns. for reducing **bacterial** toxin expression
 inhibitors are provided including, but not limited to, addition of
toxin expression inhibitor binding compds., culture media having
 reduced concns. of **toxin** inhibitor **metabolic**
 precursors and genetically modified toxigenic **bacteria** lacking
 enzymes required to **metabolize** the **toxin** inhibitor
metabolic precursors.
 L4 ANSWER 5 OF 24 MEDLINE on STN DUPLICATE 3
 AN 2001551434 MEDLINE
 DN PubMed ID: 11598055
 TI **Bordetella** pertussis autoregulates pertussis **toxin**
 production through the **metabolism** of **cysteine**.
 AU Bogdan J A; Nazario-Larrieu J; Sarwar J; Alexander P; Blake M S
 CS Baxter Healthcare Corporation, Columbia, Maryland 21046-2358, USA..
 John_Bogdan@Baxter.com
 SO Infection and immunity, (2001 Nov) 69 (11) 6823-30.
 Journal code: 0246127. ISSN: 0019-9567.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 200112
 ED Entered STN: 20011015
 Last Updated on STN: 20021218
 Entered Medline: 20011205
 AB Pertussis **toxin** (Ptx) expression and secretion in
Bordetella pertussis are regulated by a two-component signal
 transduction system encoded by the bvg regulatory locus. However, it is
 not known whether the metabolic pathways and growth state of the
bacterium influence synthesis and secretion of Ptx and other
 virulence factors. We have observed a reduction in the concentration of
 Ptx per optical density unit midway in fermentation. Studies were
 conducted to identify possible factors causing this reduction and to
 develop culture conditions that optimize Ptx expression. Medium
 reconstitution experiments demonstrated that spent medium and a fraction
 of this medium containing components with a molecular weight of <3,000
 inhibited the production of Ptx. A complete flux analysis of the

intermediate **metabolism** of *B. pertussis* revealed that the sulfur-containing amino acids methionine and **cysteine** and the organic acid pyruvate accumulated in the media. In fermentation, a large amount of internal **sulfate** (**SO₄(2-)**) was observed in early stage growth, followed by a rapid decrease as the cells entered into logarithmic growth. This loss was later followed by the accumulation of large quantities of **SO₄(2-)** into the media in late-stage fermentation. Release of **SO₄(2-)** into the media by the cells signaled the decoupling of cell growth and Ptx production. Under conditions that limited **cysteine**, a fivefold increase in Ptx production was observed. Addition of **barium** chloride (**BaCl₂**) to the culture further increased Ptx yield. Our results suggest that *B. pertussis* is capable of autoregulating the activity of the *bvg* regulon through its **metabolism** of **cysteine**. Reduction of the amount of **cysteine** in the media results in prolonged vir expression due to the absence of the negative inhibitor **SO₄(2-)**. Therefore, the combined presence and **metabolism** of **cysteine** may be an important mechanism in the **pathogenesis** of *B. pertussis*.

L4 ANSWER 8 OF 24 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on
STN
AN 2002:176480 BIOSIS
DN PREV200200176480
TI Identification and characterization of a **cysteine** desulfinate
gene in *Bordetella pertussis*.
AU Yuan, W. [Reprint author]; Bogdan, J. A. [Reprint author]; Blake, M. S.
[Reprint author]
CS Baxter Healthcare Corporation, Columbia, MD, USA
SO Abstracts of the General Meeting of the American Society for Microbiology,
(2001) Vol. 101, pp. 87. print.
Meeting Info.: 101st General Meeting of the American Society for
Microbiology. Orlando, FL, USA. May 20-24, 2001. American Society for
Microbiology.
ISSN: 1060-2011.
DT Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 6 Mar 2002
Last Updated on STN: 6 Mar 2002
AB Many studies have shown that **sulfate** ions inhibit the production
of pertussis **toxin** (Ptx). We have shown that sulfur containing
amino acids, methionine and **cysteine**, accumulate during
fermentation in the late exponential phase of **bacterial** growth
in concert with the appearance of **sulfate** anion in the media.
Ptx expression begins to wane approximately at the same time as measurable
sulfate anion can be detected. Our hypothesis is that the
accumulation of **sulfate** anion acts as a natural negative
feedback inhibitor of Ptx expression. An NIFS-like protein of *E. coli* has
been cloned and reported to have **cysteine** desulfinate activity,
removing the **sulfate** ion from **cysteine**. We have
identified a similar **cysteine** desulfinate (*dsf*) gene on a 1.2 Kb
DNA fragment from a *B. pertussis* genomic library. The DNA sequence of the
region showed an ORF having a striking sequence homology at the translated
protein level with the *dsf* gene of *E. coli*. Analysis by Southern
blotting, using the full-length gene as the probe, demonstrated that only
a single copy was present in the genome of three different *B. pertussis*
strains. To determine the expression pattern of the desulfinate gene in
our *B. pertussis* strain, we performed RT-PCR on total RNA extracted from
the cell pellets harvested at different time points during fermentation.

These studies showed that 'cdsf' transcription increased at 10 hours during fermentation, which correlated well with the observed increase of **sulfate** in the media.

L4 ANSWER 9 OF 24 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on
STN
AN 2002:176481 BIOSIS
DN PREV200200176481
TI **Bordetella pertussis** auto-regulates pertussis **toxin**
production through the **metabolic** conversion of L-
cysteine to pyruvic acid and **sulfate**.
AU Bogdan, J. A. [Reprint author]; Yuan, W. [Reprint author]; Sarwar, J.
[Reprint author]; Alexander, P. [Reprint author]; Blake, M. S. [Reprint
author]
CS Baxter Healthcare Corporation, Columbia, MD, USA
SO Abstracts of the General Meeting of the American Society for Microbiology,
(2001) Vol. 101, pp. 87. print.
Meeting Info.: 101st General Meeting of the American Society for
Microbiology. Orlando, FL, USA. May 20-24, 2001. American Society for
Microbiology.
ISSN: 1060-2011.
DT Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 6 Mar 2002
Last Updated on STN: 6 Mar 2002
AB Pertussis **toxin** (Ptx) synthesis and secretion in
Bordetella pertussis is regulated via a two component signal
transduction system encoded by the bvg regulatory locus. BvgS, is a
sensory protein in the outer membrane that regulates the expression and
secretion of Ptx in response to environmental stimuli such as MgSO₄,
nicotinic acid and growth at low temperatures. Mutations in BvgS, the RNA
polymerase alpha subunit and the proteins of the secretory apparatus
directly influence Ptx synthesis and secretion. However, it is not known
whether the metabolic pathways and growth-state of the **bacteria**
influences synthesis and secretion of Ptx and other virulence factors.
Previously, we have shown that **sulfate** (SO₄) appears
in the media in B. pertussis fermentation and in turn acts as a negative
feedback inhibitor of Ptx expression. **Cysteine** desulfurase is a
metabolic enzyme that converts L-**cysteine** into pyruvic
acid and SO₄. To determine whether this **metabolic**
pathway was involved in Ptx production, experiments were designed that
limited the amount of L-**cysteine** in the media. Under these
conditions, we observed a delay in the release of internal SO₄
into media and an increase in the amount of Ptx. Cellular extracts were
analyzed for the appearance of the Vra-b protein, a marker for the Bvg-
phase. In fermentations using limiting amounts of L-**cysteine**,
the Vra-b protein was absent. In fermentation runs using standard media,
the Vra-b protein appeared following the appearance of SO₄. We
have cloned and sequenced the B. pertussis homologue to the E. coli
cysteine desulfurase gene. Preliminary results suggest that that
there is an increase in **cysteine** desulfurase transcription
before the appearance of SO₄ in the media.

L4 ANSWER 10 OF 24 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.
on STN
AN 2000347465 EMBASE
TI **Toxins**, butyric acid, and other short-chain fatty acids are
coordinately expressed and down-regulated by **cysteine** in
Clostridium difficile.
AU Karlsson S.; Lindberg A.; Norin E.; Burman L.G.; Akerlund T.

CS T. Akerlund, Department of Bacteriology, Swedish Inst. Infect. Dis.
Contr., S-171 82 Solna, Sweden. Thomas.Akerlund@smi.ki.se
SO Infection and Immunity, (2000) 68/10 (5881-5888).
Refs: 27
ISSN: 0019-9567 CODEN: INFIBR
CY United States
DT Journal; Article
FS 004 Microbiology
LA English
SL English
AB It was recently found that a mixture of nine amino acids down-regulate
Clostridium difficile **toxin** production when added to peptone
yeast extract (PY) cultures of strain VPI 10463 (S. Karlsson, L. G.
Burman, and T. Akkerlund, Microbiology 145:1683-1693, 1999). In the
present study, seven of these amino acids were found to exhibit a moderate
suppression of **toxin** production, whereas proline and
particularly **cysteine** had the greatest impact, on both reference
strains (n = 6) and clinical isolates (n = 28) of C. difficile (>99%
suppression by **cysteine** in the highest **toxin**-producing
strain). Also, **cysteine** derivatives such as acetylcysteine,
glutathione, and **cystine** effectively down-regulated
toxin expression. An impact of both **cysteine** and
cystine but not of thioglycolate on **toxin** yield
indicated that **toxin** expression was not regulated by the
oxidation-reduction potential. Several **metabolic** pathways,
including butyric acid and butanol production, were coinduced with the
toxins in PY and down-regulated by **cysteine**. The enzyme
3-hydroxybutyryl coenzyme A dehydrogenase, a key enzyme in solventogenesis
in Clostridium acetobutylicum, was among the most up-regulated proteins
during high **toxin** production. The addition of butyric acid to
various growth media induced **toxin** production, whereas the
addition of butanol had the opposite effect. The results indicate a
coupling between specific **metabolic** processes and **toxin**
expression in C. difficile and that certain amino acids can alter these
pathways coordinately. We speculate that down-regulation of **toxin**
production by the administration of such amino acids to the colon may
become a novel approach to prophylaxis and therapy for C.
difficile-associated diarrhea.

L4 ANSWER 14 OF 24 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.
on STN
AN 94344976 EMBASE
DN 1994344976
TI Toxin production by Clostridium difficile in a defined medium with limited
amino acids.
AU Yamakawa K.; Kamiya S.; Meng X.Q.; Karasawa T.; Nakamura S.
CS Department of Bacteriology, School of Medicine, Kanazawa University, 13-1
Takara-machi, Kanazawa, Ishikawa 920, Japan
SO Journal of Medical Microbiology, (1994) 41/5 (319-323).
ISSN: 0022-2615 CODEN: JMMIAV
CY United Kingdom
DT Journal; Article
FS 004 Microbiology
LA English
SL English
AB Basal defined medium (BDM) containing vitamins, minerals and seven amino
acids - (/L) tryptophan 0.1 g, methionine 0.2 g, valine 0.3 g, isoleucine
0.3 g, proline 0.3 g, leucine 0.4 g and **cysteine** 0.5 g - which
appeared to be essential for good growth of Clostridium difficile was
prepared. Addition of glycine 0.2 g/L and threonine 0.4 g/L to BDM

produced better growth of strain VPI 10463, and this defined medium was designated minimum amino acid-defined medium (MADM). Production of **toxins** A and B by strain VPI 10463 in 6 x MADM containing (/L) tryptophan 0.6 g, methionine 1.2 g, valine 1.8 g, isoleucine 1.8 g, proline 1.8 g, leucine 2.4 g, **cysteine** 0.5 g, glycine 0.2 g and threonine 0.4 g, was much greater than in MADM. **Toxin** production by 20 *C. difficile* strains was examined in two defined media - 6 x MADM and complete amino acid-defined medium (CADM) containing 18 amino acids - and one complex medium, modified brain heart infusion medium (m-BHI). Simultaneous production of **toxins** A and B by all test strains was demonstrated in m-BHI and the two defined media. It was also shown that 6 x MADM was generally better than CADM and as effective as m-BHI for stimulating **toxin** production by 13 strains. This defined medium would be useful for studies on the physiology, **metabolism** and **pathogenicity** of *C. difficile*.

NSWER 18 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1987:421983 CAPLUS

DN 107:21983

TI Large-scale cultivation of **Bordetella pertussis** for production of pertussis **toxin**

IN Sekura, R. D.

PA United States Dept. of Health and Human Services, USA

SO U. S. Pat. Appl., 17 pp. Avail. NTIS Order No. PAT-APPL-6-889 621.

CODEN: XAXXAV

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 889621	A0	19861205	US 1986-889621	19860728
	US 5338670	A	19940816	US 1992-989908	19921211
PRAI	US 1986-889621		19860728		
	US 1989-338459		19890417		
	US 1990-504022		19900404		
AB	<p><i>B. pertussis</i> Is cultivated and production of its toxin enhanced by (1) incorporation of an antifoam agent; (2) controlling aeration by using pure O or O-enriched air; and (3) regulation of Fe content in the medium. Thus, the microorganism was precultured in a medium containing 10 mg FeSO₄/L and then cultured in a medium (pH 7.4) containing Na glutamate 965, proline 21.6 g, anti-foam C 45 mL and salts (supplemented with cystine 4.0, ascorbic acid 2.0, niacin 0.4, and reduced glutathione 10 g) at 36° with agitation. O concentration was maintained at 40% of saturation Bacterial growth and pertussis toxin production reached a maximum in .apprx.20 h. The maximum toxin value was approx. 6 mg/L.</p>				

L4 ANSWER 24 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1961:119606 CAPLUS

DN 55:119606

OREF 55:22546d-h

TI Detoxification function of depot iron. II. Animal experimental studies on the detoxification of tetanus toxin by hemosiderin and reducing substances

AU Heilmeyer, L.; Wohler, F.

CS Med. Univ.-Klinik, Freiburg i. B., Germany

SO Klinische Wochenschrift (1961), 39, 563-81

CODEN: KLWOAZ; ISSN: 0023-2173

DT Journal

LA Unavailable

AB cf. CA 55, 8591e. Incubation of a mouse lethal dose of tetanus

toxin with 2 mg. hemosiderin for 6 hrs. at pH 5.5 and 37°

completely protected the animals against the **toxin**. The **toxin** was also inactivated when it was incubated with hemosiderin plus ascorbic acid or **cysteine** or with FeSO_4 or FeCl_3 . Incubation with distilled water did not appreciably affect activity of the **toxin** and incubation with ferritin only slightly prolonged survival time. In Fe-depleted mice the survival time after injection of **toxin** was significantly diminished. Brief incubation (10-60 min.) of **toxin** with ascorbic acid, FeSO_4 , or Reducdyn (preparation of DL-homocysteine thiolactone, L-**cysteine**, and fructose) produced inactivation but shorter times were not effective. Similar results were obtained in rats and rabbits. FeSO_4 , and to a lesser extent the other 2 compds., increased the survival time of mice when it was injected intraperitoneally as the **toxin** was injected subcutaneously. When these compds. were injected 30 min. later than the **toxin**, they afforded no protection. Oral doses of FeSO_4 also partially protected against subsequently injected **toxin**. These and earlier results indicate that Fe ions released by reducing substances from Fe deposits, particularly in reticuloendothelial cells in sites of inflammation, may function in the inactivation of **bacterial toxins**.

L12 ANSWER 6 OF 19 MEDLINE on STN DUPLICATE 2
 AN 2000233619 MEDLINE
 DN PubMed ID: 10770786
 TI Antibacterial agents and release of periplasmic pertussis **toxin**
 from **Bordetella** pertussis.
 AU Craig-Mylius K A; Weiss A A
 CS Department of Molecular Genetics, Biochemistry, and Microbiology,
 University of Cincinnati, Cincinnati, Ohio 45267-0524, USA.
 NC R01 AI23695 (NIAID)
 SO Antimicrobial agents and chemotherapy, (2000 May) 44 (5) 1383-6.
 Journal code: 0315061. ISSN: 0066-4804.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 200005
 ED Entered STN: 20000525
 Last Updated on STN: 20021218
 Entered Medline: 20000518
 AB Pertussis **toxin** accumulates in the periplasm of
Bordetella pertussis prior to secretion, and we examined its fate
 following treatment with antimicrobial agents. Both antibiotics that
inhibit protein synthesis (erythromycin and chloramphenicol),
 transcription (rifampin), or cell wall biosynthesis (cefoperazone and
 piperacillin) and magnesium **sulfate** (which **inhibits**
 transcription of pertussis **toxin**, but not **bacterial**
 growth) did not prevent release of preformed **toxin**. In
 contrast, agents that affect **bacterial** membranes, such as
 polymyxin B, lidocaine, procaine, and ethanol, inhibited release of
 preformed pertussis **toxin**. These results suggest new protein
 synthesis is not required for pertussis **toxin** secretion, but a
 functional membrane complex is required.